

Appl. No. 10/591,894  
Amdt. dated August 4, 2009  
Reply to Office Action of May 5, 2009  
Attorney Docket No. 1455-062610

**Amendments to the Drawings:**

The attached sheets of drawings include changes to Figures 1 and 2. Figures 1 and 2 have been amended to remove reference character "322" which, as pointed out in the May 5, 2009 Office Action, was not mentioned in the specification.

Attachments: Replacement Sheets

Annotated Sheets Showing Changes

### **REMARKS**

Applicants have amended the specification and claim 7 to correct minor grammatical and/or translational errors. Figures 1 and 2 have been amended to remove reference character "322." Claims 1 and 12 have been amended to define the first and second support limitations more clearly. Support for these changes can be found in paragraph [56] and Figures 1 and 2 of the application as filed. Claim 12 has been amended to define the cathode as centrally and longitudinally placed in the vacuum tube. Support for this amendment can be found in Figures 6 and 7 as well as paragraph [65] of the application as filed. No new matter has been added. Entry of these amendments is respectfully requested.

#### **Allowable Subject Matter:**

Applicants acknowledge and thank the Examiner for indicating that claims 5-7 and 14 contain allowable subject matter and would be allowed if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, for the following reasons, Applicants believe the application contains additional patentable subject matter.

#### **Objections to the Drawings:**

The drawings were objected to because they included reference character "322" which was not mentioned in the description. Corrected drawing sheets in which this reference character has been removed are submitted herewith. It is believed this submission of new drawing sheets is sufficient to overcome this objection.

#### **Objections to the Specification:**

The specification was objected to because of several typographical errors. The specification has been reviewed for any additional errors. Finding no additional

errors, the errors pointed out by the Examiner have been corrected and, thus, this objection is considered moot.

Claim Rejections Based on Dally et al.:

Claims 1, 3, 4, 8-11 and 15 stand rejected under 35 U.S.C. §103(a) for obviousness over Dally et al. (US 2005/0225224) in view of Bayless (US 4,008,413; "Bayless '413") and further in view of Bayless (US 3,978,363; "Bayless '363"). Claim 2 stands rejected under 35 U.S.C. §103(a) for obviousness over Dally in view of Bayless '413, further in view of Bayless '363, and further in view of Gao et al. (US 2004/0256975). Because the Dally publication does not constitute prior art with respect to the subject application, this rejection is respectfully traversed.

The Dally publication has a publication date of October 13, 2005 and the underlying application was filed on April 13, 2004. The Dally publication does not claim priority to any previously-filed United States applications and, thus, the earliest potential effective date of the Dally publication for prior art purposes is April 13, 2004. On the other hand, the subject application represents the national stage of a PCT application filed on March 9, 2005. This predates the publication date of the Dally publication and, thus, Dally cannot constitute prior art under 35 U.S.C. §102(b). Moreover, Applicants' PCT application properly claims the benefit of a Korean application filed on March 9, 2004. Consequently, Applicants can establish an invention date at least as early as March 9, 2004. A certified translation of this priority Korean application is included herewith and copies of the certified copies of the priority documents were already received by the Office from the International Bureau as indicated on the Office Action Summary page. Because Applicants can establish an invention date before the filing date of the Dally application, Dally also does not constitute prior art under either of 35 U.S.C. §102(a) or (e).

Because Applicants' priority date of March 9, 2004 precedes the earliest effective prior art date of the Dally publication, Applicants respectfully submit that Dally

is not prior art with respect to the subject application. Accordingly, each of the outstanding rejections based on the Dally publication should be withdrawn.

Rejection Based on Fink:

Claims 12 and 13 stand rejected under 35 U.S.C. §103(a) for obviousness over Fink (US 7,078,716) in view of Bayless '413 and further in view of Bayless '363. In view of the amendment to claim 12, this rejection is respectfully traversed.

The Office Action contends that Fink discloses an irradiator having a vacuum chamber, a plurality of longitudinally-formed beam irradiation windows, and a cathode having a plurality of field emitter tips corresponding to the beam irradiation windows. Admittedly, Fink fails to disclose the other limitations of claim 12 which mainly relate to the support elements. The Bayless patents are cited to allegedly suggest the use of a first and second support.

Claim 12 has now been amended to define the cathode as centrally and longitudinally placed within the vacuum tube. Similar language was found in claim 1. Applicants note that the combination of Fink, Bayless '413 and Bayless '363 was not used in rejecting claim 1. As clearly seen in the figures of Fink, the cathode is not placed centrally and longitudinally in the vacuum tube, but instead appears to be disposed along an exterior wall. Moreover, Fink suggests that such a flat, large area cathode provides the large, uniform source of electrons desirable for applications for electron beams. (Fink, col. 2 ll. 1-12). Thus, Fink does not suggest a centrally and longitudinally placed cathode.

Accordingly, in view of the foregoing amendments, claims 12 and 13 are patentable over the combination of Fink and the Bayless patents. Thus, the rejection of claims 12 and 13 should be reconsidered and withdrawn.

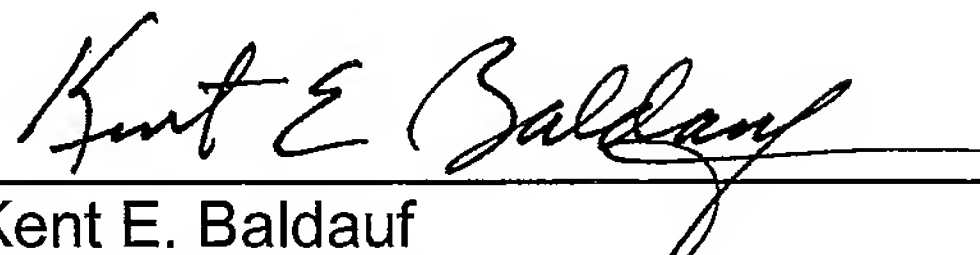
**CONCLUSION**

For the foregoing reasons, Applicants submit that the pending claims are patentable over the cited documents of record and are in condition for allowance.

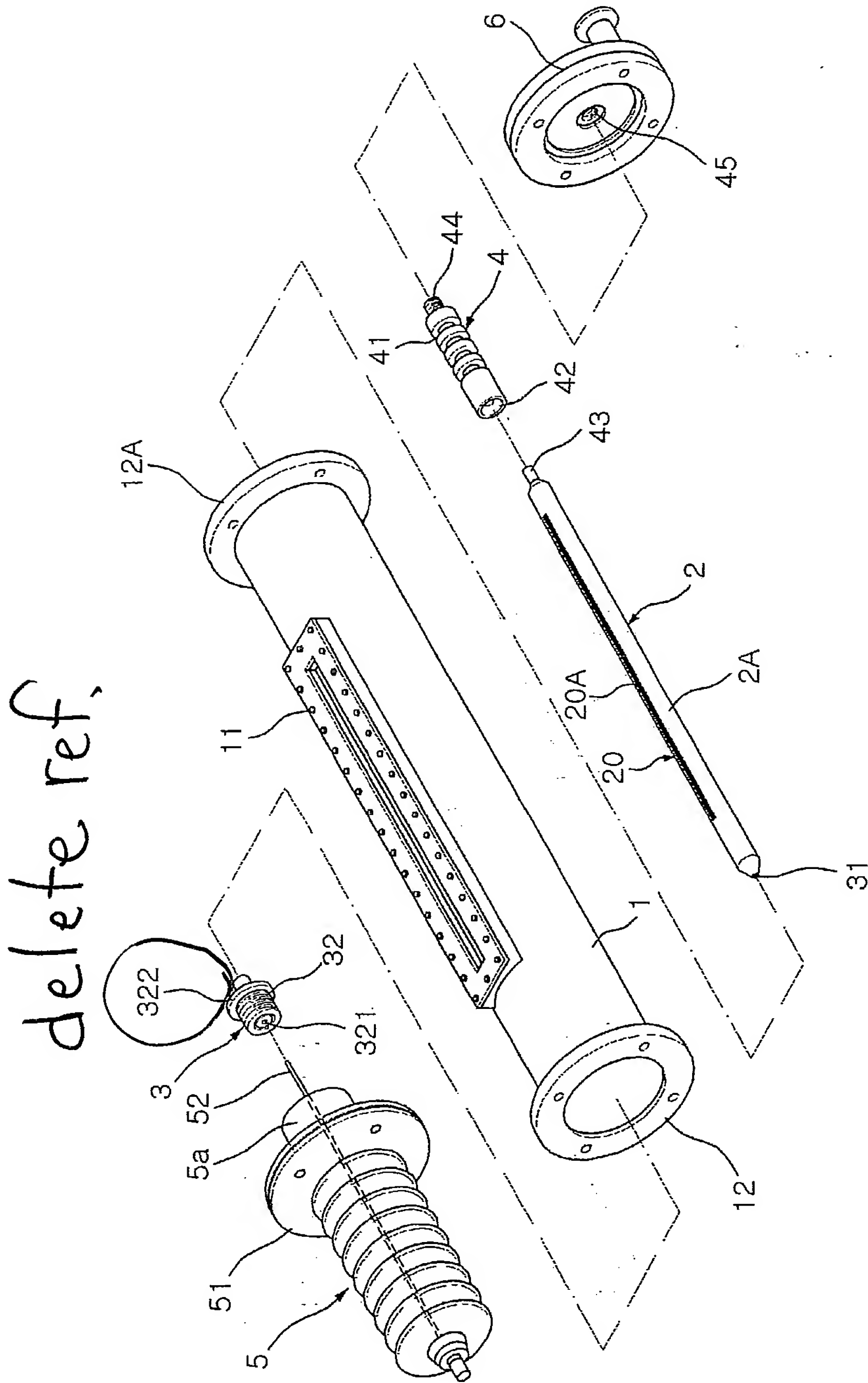
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Accordingly, reconsideration of the outstanding rejections and allowance of pending claims 1-15 are respectfully requested.

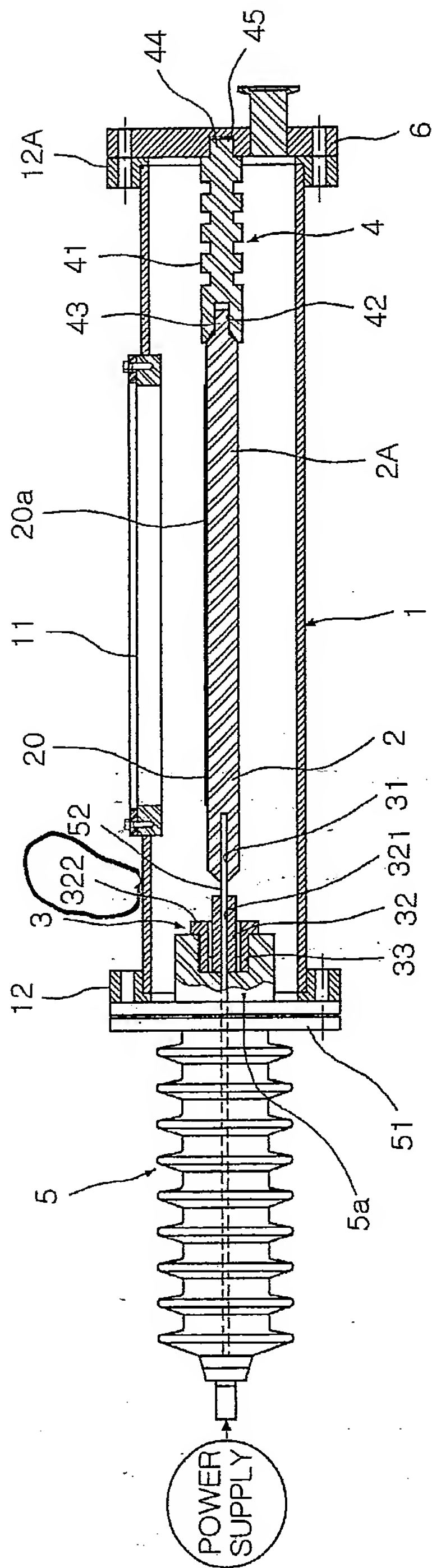
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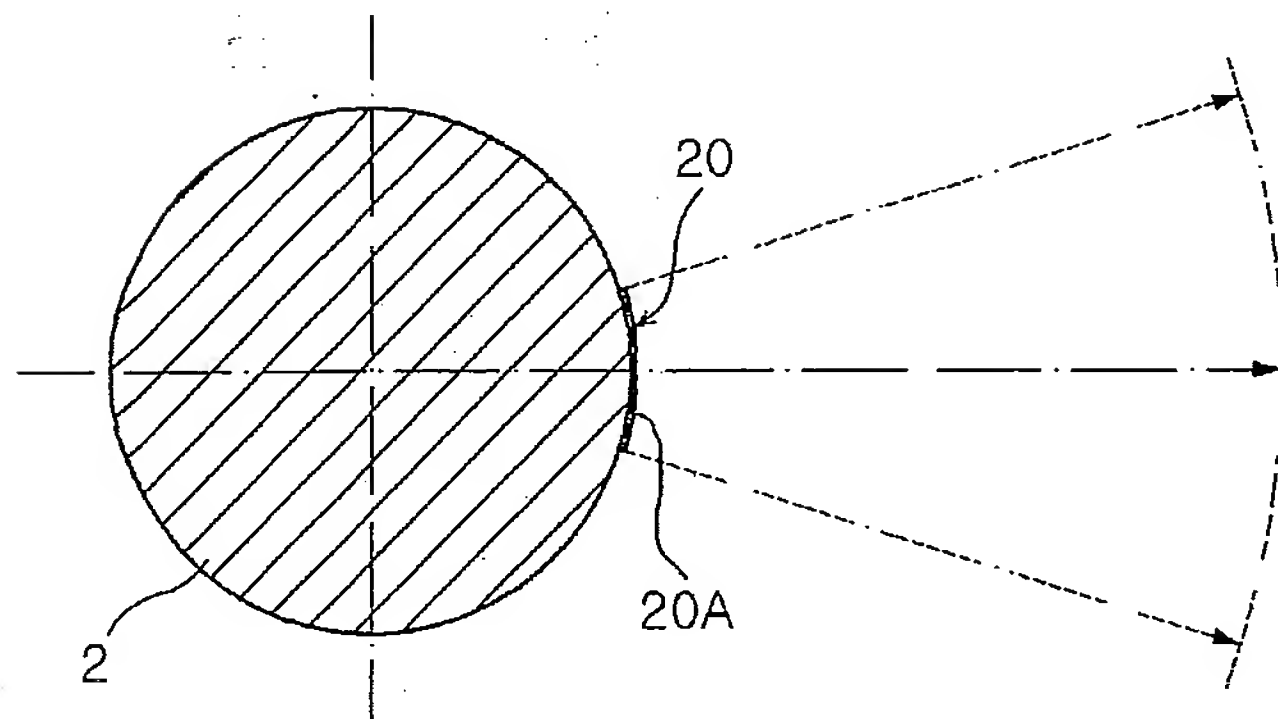
[Fig. 1]



[Fig. 2]



*delete ref.*



[Fig. 3]